CIVIL PRO
AN ISO 9001 : 2008 COMPANY & ACCREDITED LABORATORY AS PER ISO/IEC 17025:2017
4, 7TH MAIN MALLESWARAM, BANGALORE -3

To,

Date: 05-05-2023

ASSISTANT EXECUTIVE ENGINEER
VIDYARANYAPURA SUB DIVISION
BBMP
BANGALORE

Dear Sir,

Sub: M/s. Civil Pro Services for the work of **"IMPROVEMENTS TO ROADS AND DRAINS AT NANJAPPA LAYOUT MAIN ROAD, CROSS ROADS, RAMANNA GARDEN AND SURROUNDING AREAS IN WARD NO.14 (VIDYARANYAPURA)"**

Ref: 1. Work Order No: BBMP/EE/BTP/WO/189/2022-23

2. Job code: 014-23-000011

We are here with forwarding to Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024. First and Final bill duly verified and certified that the Work is satisfactory and for a Gross Value of Rs.57,71,888.95 /- (Rs. Fifty Seven Lakhs Seventy One Thousand Eight Hundred Eighty Eight and Ninety Five Paisa Only).

Thanking you,

Yours faithfully,

For Civil Pro

CIVIL Pro Sig..... Date..... BANGALORE

R RUDRAPRASAD
AUTHORIZED SIGNATORY
CIVIL PRO

Assistant Executive Engineer
Vidyaranyapura Sub Division
B.B.M.P, Bangalore - 97

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QC ABSTRACT

NAME OF WORK: Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
		Materials				
1	Cement	Fineness by dry sieving	One Test		1	1
		Finess by Air permeablity method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
		Compressive Strength	One Test		1	1
2	Coarse aggregate(40 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
3	Coarse aggregate(20 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
		Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
4	Fine aggregate	SIEVE ANALYSIS	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
5	Steel	Bend test	One Test		1	1
		Tensile Test	One Test		1	1
		Yield Test	One Test		1	1
		ReBend test	One Test		1	1
6	Precast (100mm)	Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
7	Precast (230mm)	Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
8	RCC(M20)	Compressive Strength(7days and 28days)	3 sets /16-30 cum	21.34	6	6

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9	WMM	Sieve Analysis	One Test		1	1
		Impact Value	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
10	DBM	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
11	BC	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
12	BITUMEN	Ductility	One Test		1	1
		Softening Point	One Test		1	1
		Penetration	One Test		1	1
		Flash Point	One Test		1	1
		Fire Point	One Test		1	1
13	TACK COAT	Rate of spread	One Test		1	1

623
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Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2023-05-05-07** **Date: 30-03-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer's Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	27-03-23
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 269:2015 Ordinary Portland cement Specification , IS 4031 (Part 4,5):1988 IS 4031 Part 1 (RA 2021) DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, (RA 2018) Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, (RA 2019) Determination of Soundness, Clause 5, Clause 6 IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, (RA 2019) Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11, (RA 2019)DETERMINATION OF DENSITY , Clause 6
Date of test	:	28-03-23
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	Fineness by dry sieving (%)	1.51	–
2	Finess by Air permeablity method (m^2/kg,Min)	297.5	225m^2/kg, Min
3	Density (gm/cc)	3.13	–
4	Standard Consistency (%)	29.0%	Not specified
5	Initial Setting time	145 minutes	Not less than 30 minutes
6	Final Setting time	195 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	2.0 mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.

Note:

The results pertain to the samples received and tested.

All information furnished by Agency/Representative

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FOR CIVIL Pro.

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

Page 1/1
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Assistant Executive Engineer
Vidyaranyapura Sub Division
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Format No: CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2023-05-05-07** **Date: 25-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer's Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	27-03-23
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 269:2015 Ordinary Portland cement Specification , IS 4031 (Part 4,5):1988 IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, (RA 2019) Determination of Compressive Strength, Clause 6
Date of test	:	28-03-23
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	3 Days	29.0N/mm^2	Not less than 27 N/mm^2
2	7 Days	38.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	56.5N/mm^2	Not less than 53 N/mm^2

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Technical Manager

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Vidyaranyapura Sub Division
B.B.M.P, Bangalore - 97

Format No: CP/TF/01

TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2023-05-05-07** **Date: 30-03-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer's Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	27-03-23
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2021 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	27-03-23

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	1078	1078	7.2	92.8	90-100
3	20 mm	5851	6929	46.2	53.8	30-70
4	10 mm	5019	11948	79.7	20.3	10-35
5	4.75 mm	2721	14669	97.8	2.2	0-5
6	Pan	331	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2023-05-05-07** **Date: 30-03-23**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.1	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	10.5	
3	Specific Gravity	2.62	_
4	Bulk Density(Loose) (Kg/l)	1.5	_
5	Bulk Density(Compacted) (Kg/l)	1.53	_
6	Water Absorption(%)	0.18	_

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Authorized Signatory
Technical Manager

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Format No: CP/TF/01

TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2023-05-05-07** **Date: 29-03-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	27-03-23
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2021 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	27-03-23

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	287	287	5.7	94.3	90-100
3	10 mm	2587	2874	57.5	42.5	25-55
4	4.75 mm	1881	4755	95.1	4.9	0-10
5	Pan	245	5000	100	0	_

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2023-05-05-07** **Date: 29-03-23**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	10.1	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.5	
3	Specific Gravity	2.61	_
4	Bulk Density(Loose) (Kg/l)	1.51	_
5	Bulk Density(Compacted) (Kg/l)	1.55	_
6	Water Absorption(%)	0.23	_
7	Aggregate crushing Value(%)	23.1	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	24.8	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

DB-09

Assistant Executive Engineer
Vidyaranyapura Sub Division
B.B.M.P, Bangalore - 97

Format No: CP/TF/01

TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2023-05-05-07** **Date: 29-03-23**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)

Agency : Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024

Customer's Reference : BBMP/EE/BTP/WO/189/2022-23

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 27-03-23

Sample Type : Fine Aggregate

Reference to BIS codes : IS 383 : 2016 (Specification for Coarse and fine Aggregates)
IS: 2386 :1963(Part - 1, 3) RA2021
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption

Date of test : 27-03-23

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	35	35	3.5	96.5	90-100	90-100	90-100	95-100
3	2.36 mm	197	232	23.2	76.8	60-95	75-100	85-100	95-100
4	1.18 mm	201	433	43.3	56.7	30-70	55-90	75-100	90-100
5	600 micron	147	580	58.0	42.0	15-34	35-59	60-79	80-100
6	300 micron	124	704	70.4	29.6	5-20	8-30	12-40	15-50
7	150 micron	232	936	93.6	6.4	0-10	0-10	0-10	0-15
8	Pan	64	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

Assistant Executive Engineer
Vidyaranyapura Sub Division
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CIVIL Pro Sig. Date. BANGALORE

M : 9972924526 | Tel : +91 80 23444801 | e : rechan6630@yahoo.co.in, civilproexperts@gmail.com

TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2023-05-05-07** **Date: 29-03-23**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	2.14	_
2	Specific Gravity	2.57	_
3	Material finer than 75 micron(%)	6.4	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

* The results obtained are satisfactory as per standard requirements.

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Authorized Signatory
Technical Manager

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Format No: CP/TF/01

TEST RESULTS OF STEEL

Lab ID	:	**CP-2023-05-05-07** **Date: 28-03-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer's Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	27-03-23
Sample Type	:	Sunvik
Reference to BIS codes	:	IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2019.
Date of test	:	27-03-23

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm2)	(N/mm2)	(%)		
1	Sunvik	Fe500	8	0.391	512	652	20.0%	Satisfactory	Satisfactory
2	Sunvik	Fe500	10	0.616	528	672	20.0%	Satisfactory	Satisfactory
3	Sunvik	Fe500	12	0.888	544	668	20.0%	Satisfactory	Satisfactory

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

28-03-23

Assistant Executive Engineer
Vidyaranyapura Sub Division
B.B.M.P, Bangalore - 97

End of Report

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Format No: CP/TF/01

TEST REPORT OF PRECAST COVER SLAB

Lab ID	:	**CP-2023-05-05-07** **Date: 10-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer's Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	05-04-23
Sample Type /Size	:	Precast Cover Slab (100 mm Thick)
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test	:	05/04/2023
Grade of Slab	:	M15

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	77.51	100.48	1.116	4718	80.9	17.1	15.9	19.9
2	Cover Slab-2	77.49	100.52	1.122	4715	82.3	17.5	16.2	20.3
3	Cover Slab-3	77.50	100.51	1.118	4716	81.5	17.3	16.1	20.1

* The results obtained are satisfactory as per standard requirements.

Note:

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Format No: CP/TF/01

TEST REPORT OF PRECAST COVER SLAB

Lab ID	:	**CP-2023-05-05-07** **Date: 10-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer's Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	05-04-23
Sample Type /Size	:	Precast Cover Slab (230mm Thick)
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test	:	05/04/2023
Grade of Slab	:	M15

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	77.43	230.52	2.810	4708	80.9	17.2	16.0	20.0
2	Cover Slab-2	77.36	230.63	2.809	4699	83.3	17.7	16.5	20.6
3	Cover Slab-3	77.86	230.45	2.813	4760	84.7	17.8	16.5	20.7

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2023-05-05-07** **Date: 11/04/2023**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)

Agency : Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024

Customer's Reference : BBMP/EE/BTP/WO/189/2022-23

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 06-04-23

Customer ID : Drain Bottom Raft Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 11/04/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Bottom Raft Concrete	M20	04/04/2023	11/04/2023	150.94 X 151.84 X 150.89	22919	8.844	412.7	18.0	18.4
2	Drain Bottom Raft Concrete	M20	04/04/2023	11/04/2023	151.10 X 151.16 X 151.75	22840	8.955	426.7	18.7	
3	Drain Bottom Raft Concrete	M20	04/04/2023	11/04/2023	150.58 X 149.52 X 150.62	22515	8.816	418.0	18.6	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID	:	**CP-2023-05-05-07** **Date: 02/05/2023**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer's Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	06-04-23
Customer ID	:	Drain Bottom Raft Concrete
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 28 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test	:	02/05/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Bottom Raft Concrete	M20	04/04/2023	02/05/2023	149.86 X 151.13 X 150.00	22647	8.758	531.8	23.5	23.2
2	Drain Bottom Raft Concrete	M20	04/04/2023	02/05/2023	149.46 X 149.49 X 151.69	22343	8.714	503.9	22.6	
3	Drain Bottom Raft Concrete	M20	04/04/2023	02/05/2023	151.91 X 150.20 X 151.19	22816	8.584	537.7	23.6	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID	:	**CP-2023-05-05-07** **Date: 14/04/2023**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer's Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	10-04-23
Customer ID	:	Drain Side Wall Concrete
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M20 / 7 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test	:	14/04/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm^2)	(N/mm^2)
1	Drain Side Wall Concrete	M20	07/04/2023	14/04/2023	149.44 X 151.44 X 151.94	22632	8.790	425.2	18.8	18.7
2	Drain Side Wall Concrete	M20	07/04/2023	14/04/2023	149.34 X 150.04 X 150.96	22407	8.185	419.0	18.7	
3	Drain Side Wall Concrete	M20	07/04/2023	14/04/2023	151.99 X 149.59 X 150.86	22736	8.969	422.7	18.6	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2023-05-05-07** **Date: 05/05/2023**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)

Agency : Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024

Customer's Reference : BBMP/EE/BTP/WO/189/2022-23

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 10-04-23

Customer ID : Drain Side Wall Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 05/05/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Side Wall Concrete	M20	07/04/2023	05/05/2023	149.75 X 151.30 X 151.33	22657	8.424	532.3	23.5	23.3
2	Drain Side Wall Concrete	M20	07/04/2023	05/05/2023	151.65 X 151.92 X 151.73	23039	8.229	526.4	22.8	
3	Drain Side Wall Concrete	M20	07/04/2023	05/05/2023	150.13 X 149.88 X 151.67	22501	8.188	530.6	23.6	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2023-05-05-07** **Date: 14/04/2023**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)

Agency : Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024

Customer's Reference : BBMP/EE/BTP/WO/189/2022-23

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 10-04-23

Customer ID : Drain Side Wall Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 14/04/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Side Wall Concrete	M20	07/04/2023	14/04/2023	150.38 X 150.37 X 151.72	22613	9.021	410.4	18.1	18.3
2	Drain Side Wall Concrete	M20	07/04/2023	14/04/2023	150.20 X 151.52 X 149.62	22758	8.224	416.6	18.3	
3	Drain Side Wall Concrete	M20	07/04/2023	14/04/2023	150.80 X 151.13 X 149.84	22791	8.692	422.6	18.5	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2023-05-05-07** **Date: 05/05/2023**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)

Agency : Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024

Customer's Reference : BBMP/EE/BTP/WO/189/2022-23

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 10-04-23

Customer ID : Drain Side Wall Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 05/05/2023

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Side Wall Concrete	M20	07/04/2023	05/05/2023	149.13 X 150.53 X 149.75	22448	8.353	521.2	23.2	22.9
2	Drain Side Wall Concrete	M20	07/04/2023	05/05/2023	151.90 X 151.29 X 150.93	22980	8.497	509.2	22.2	
3	Drain Side Wall Concrete	M20	07/04/2023	05/05/2023	151.47 X 149.66 X 150.34	22669	8.689	529.1	23.3	

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TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	**CP-RW-2023-05-05-07** **Date: 10-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	08-04-23
Type of Mix	:	WMM (Wet Mix Macadam)
Date of Test	:	08-04-23
Oven Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	316	316	2.9	97.1	95-100
22.4	2266	2582	23.5	76.5	60-80
11.2	2183	4765	43.3	56.7	40-60
4.75	2251	7016	63.8	36.2	25-40
2.36	1623	8639	78.5	21.5	15-30
0.6	633	9272	84.3	15.7	8-22
0.075	1320	10592	96.3	3.7	0-5

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TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID	:	**CP-RW-2023-05-05-07** **Date: 10-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	08-04-23
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of Test	:	08-04-23

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	300.2	300.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	73.9	74.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	225.9	225.8
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.4
5	Aggregate impact value	(B/A)*100	24.6	24.7
6	Aggregate impact value (Mean of two tests)	Pecentage	24.6	

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2023-05-05-07** **Date: 10-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	08-04-23
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of Test	:	08-04-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.5%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.3%	
Combined Flakiness and Elongation Index for WMM	24.8%	

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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID	:	**CP-RW-2023-05-05-07**	**Date: 14-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.	
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)	
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024	
Customer's Reference	:	BBMP/EE/BTP/WO/189/2022-23	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	12-04-23	
Sample Type	:	Bitumen	
Reference to BIS codes	:	IS: 1201-2021, IS: 1202-1220(1978) (Reaffirmed-2019)	
Date of Test	:	12-04-23	

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	**64**	Min 45mm
2	Softening Point, °C	**51.2**	Min. 47°C
3	Ductility, cm	**98**	Min. 40cm
4	Flash point, °C	**245**	Min. 220°C
	Fire point, °C	**272**	

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TEST RESULTS OF GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2023-05-05-07** **Date: 19-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-04-23
Type of Mix	:	DBM-Plant (Dense Bituminous Macadam)
Date of Test	:	17-04-23
Weight of Sample	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100.0	100
26.5	253	253	5.06	94.9	90-100
19	353	606	12.12	87.9	71-95
13.2	455	1061	21.22	78.8	56-80
4.75	1760	2821	56.42	43.6	38-54
2.36	500	3321	66.42	33.6	28-42
0.3	1250	4571	91.42	8.6	7-21
0.075	250	4821	96.42	3.6	2-8
PAN	179	5000	100.00	0.0	0

* The results obtained are satisfactory as per standard requirements.

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Vidyaranyapura Sub Division
B.B.M.P, Bangalore - 97

PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID	:	**CP-RW-2023-05-05-07** **Date: 20-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-04-23
Type of Mix	:	DBM (Dense Bituminous Macadam)
Date of Test	:	17-04-23

Table 500-6 : Physical Requirements fo Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	15.0	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	15.0		
Strength	Aggregate Impact Value	23.0	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.38	Maximum 2%	IS:2386 Part III

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123
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Page 1/1
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Assistant Executive Engineer
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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2023-05-05-07** **Date: 20-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	17-04-23
Type of Mix	:	DBM (Dense Bituminous Mecadam)
Date of Test	:	17-04-23

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.54	3.87	2-4
3	Percent air Voids	4.56	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	–

* The results obtained are satisfactory as per standard requirements.

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2023-05-05-07** **Date: 20-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	17-04-23
Type of Mix	:	DBM(Dense Bitumnous Macadam)
Date of Test	:	17-04-23

Type of Binder	:	60/70
% of Binder Used	:	4.5%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	9.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

Note:-
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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2023-05-05-07**	**Date: 28-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.	
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)	
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024	
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23	
Source of Sample	:	Sample supplied by Agency	
Date of Receipt	:	27-04-23	
Type of Mix	:	DBM (Dense Bituminous Macadam)	
Date of Test	:	27-04-23	

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1}$ X 100	4.60	4.50
7	Average percentage	%	4.55	

28/3
28-04-23

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Lab ID : **CP-RW-2023-05-05-07** **Date: 28-04-23**

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0.0	100.0	100
26.5	0	0	0.0	100.0	90-100
19	47	47	9.8	90.2	71-95
13.2	53	100	20.9	79.1	56-80
4.75	190	290	60.5	39.5	38-54
2.36	50	340	71.0	29.0	28-42
0.3	50	390	81.4	18.6	7-21
0.075	60	450	93.9	6.1	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0.0	100.0	100
26.5	0	0	0.0	100.0	90-100
19	48	48	10.0	90.0	71-95
13.2	59	107	22.3	77.7	56-80
4.75	185	292	60.9	39.1	38-54
2.36	46	338	70.5	29.5	28-42
0.3	50	388	80.9	19.1	7-21
0.075	63	451	94.1	5.9	2-8

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TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2023-05-05-07** **Date: 24-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	21-04-23
Type of Mix	:	BC-Plant (Bituminous Concrete)
Date of Test	:	21-04-23
Oven Dry Weight	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	700	789	15.8	84.2	70-88
4.75	890	1679	33.6	66.4	53-71
2.36	580	2259	45.2	54.8	42-58
1.18	490	2749	55.0	45.0	34-48
0.6	500	3249	65.0	35.0	26-38
0.3	520	3769	75.4	24.6	18-28
0.15	458	4227	84.5	15.5	12-20
0.075	350	4577	91.5	8.5	4-10
PAN	423	5000	100	0.0	0

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Assistant Executive Engineer
Vidyaranyapura Sub Division
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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2023-05-05-07** **Date: 24-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	21-04-23
Type of Mix	:	BC(Bitumenous Concrete)
Date of Test	:	21-04-23

Type of Binder	:	60/70
% of Binder Used	:	5.4%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.8 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

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Page 1/1
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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2023-05-05-07** **Date: 24-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	21-04-23
Type of Mix	:	BC (Bituminous Concrete)
Date of Test	:	21-04-23

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2023-05-05-07** **Date: 24-04-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)
Agency	:	Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024
Customer Reference	:	BBMP/EE/BTP/WO/189/2022-23
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	21-04-23
Type of Mix	:	BC (Bituminous Concrete)
Date of Test	:	21-04-23

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	–

* The results obtained are satisfactory as per standard requirements.

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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : **CP-RW-2023-05-05-07** **Date: 29-04-23**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)

Agency : Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024

Customer Reference : BBMP/EE/BTP/WO/189/2022-23

Source of Sample : Sample supplied by Agency

Date of Receipt : 28-04-23

Type of Mix : BC (Bituminous Concrete)

Date of Test : 28-04-23

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1}$ X 100	5.60	5.40
7	Average percentage	%	5.50	

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Lab ID : **CP-RW-2023-05-05-07** **Date: 29-04-23**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.6	62.4	53-71
2.36	88	266	56.1	43.9	42-58
1.18	29	295	62.2	37.8	34-48
0.6	11	306	64.6	35.4	26-38
0.3	46	352	74.3	25.7	18-28
0.15	45	397	83.8	16.2	12-20
0.075	54	451	95.1	4.9	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.0	44.0	42-58
1.18	29	295	62.1	37.9	34-48
0.6	11	306	64.4	35.6	26-38
0.3	46	352	74.1	25.9	18-28
0.15	45	397	83.6	16.4	12-20
0.075	55	452	95.2	4.8	4-10

* The results obtained are satisfactory as per standard requirements.

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Page 2/2
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Assistant Executive Engineer
Vidyaranyapura Sub Division
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DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID : **CP-RW-2023-05-05-07** **Date: 29-04-23**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Nanjappa Layout Main Road, Cross Roads, Ramanna Garden and Surrounding areas in Ward No.14 (Vidyaranyapura)

Agency : Sri. Gopi Reddy, No:13, Sai Baba Temple Road, Opp, Coffee Board Layout, Marriyanna Palya, Bengaluru-560024

Customer Reference : BBMP/EE/BTP/WO/189/2022-23

Sample Condition : Satisfactory

Date of Receipt : 28-04-23

Type of Mix : Tack coat

Date of Test : 28-04-23

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

Note:-

The results pertain to the samples received and tested.
All information Furnished by Agency/ Representative
Any correction in the report will make this report invalid.
This report without prior written approval should not be reproduced or published in full or part.
Samples will be disposed after 30 days from the date of issue of test certificate

FOR CIVIL Pro.

CIVIL Pro Sig..... Date..... BANGALORE

R RUDRAPRASAD
Authorized Signatory
Technical Manager

Page 1/1
End of Report

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